

REMARKS

Claim 1 has been amended. Thus, claims 1-13 are pending. Support for the amendment to claim 1 may be found in the specification at page 10, lines 2-4. Thus, no new matter has been added. Reconsideration of the application in view of the following comments is respectfully requested.

I. Rejections over Prior Art

A. The Rejections

Claims 1, 3, 5-8, 10 and 12 were rejected under 35 U.S.C. §102(b) as being anticipated by Uetani et al. (WO2001/73512). The citations to this reference are from the English-language equivalent US 2003/0113661. Accordingly, this reference is hereinafter referred to as “Uetani ‘661.”

Claims 1, 4-6, 9 and 12 were rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Uetani et al. (WO 2000/46640). The citations to this reference are from the English-language equivalent US 6,627,381. Accordingly, this reference is hereinafter referred to as “Uetani ‘381.”

Claim 11 was rejected under 35 U.S.C. 103(a) as being unpatentable over each of the two cited Uetani references in view of Ichikawa et al. (US 6,153,349).

Claim 12 was rejected under 35 U.S.C. 103(a) as being unpatentable over Uetani ‘661 in view of Ishibashi et al. (US 6,579,657).

B. Rebuttal to Rejections

As discussed below, the foregoing cited references, either alone or in combination, do not anticipate or render obvious the claimed invention.

1. Novelty

Claim 1 as amended recites that, “both the hydroxyl groups of (a1) and the alcoholic hydroxyl groups of (a2) are partially protected by the acid dissociable, dissolution inhibiting groups.” As explained below, neither of the Uetani references disclose this feature.

The synthesis examples of both Uetani '661 and Uetani '381 disclose the ratio of the number of 1-ethoxy groups relative to the number of benzene rings in their Examples. See, Uetani '661 at paragraph [0093], lines 20-22; paragraph [0095], lines 1-2 from the bottom; and Uetani '381 at column 10, lines 13-16; column 10, lines 36-38; and column 11, lines 8-9. Because there is no disclosure of the ratio of ethoxy groups relative to any portion of the adamantyl (meth)acrylate groups, it is clear that Uetani '661 and Uetani '381 disclose that only the hydroxyl groups within hydroxystyrene are protected with ethoxy groups, but that the hydroxyl groups within 3-hydroxy-1-adamantyl (meth)acrylate are not protected.

A comparison of Synthesis Example 1 with Synthesis Example 3 of Uetani '381 further shows that the production methods of the Uetani references result in partial protection of only the hydroxyl groups of the hydroxystyrene. These two synthesis examples are similar except that Synthesis Example 1 relates to a partially 1-ethoxyethylated hydroxystyrene/3-hydroxy-1-adamantyl methacrylate copolymer, while Synthesis Example 3 relates to a partially 1-ethoxyethylated hydroxystyrene homopolymer. Both synthesis examples resulted in a proportion of 1-ethoxyethoxy groups relative to the number of benzene rings of approximately 40%. Since the homopolymer of Synthesis Example 3 includes only hydroxystyrene, it can be concluded that the 40% of the hydroxyl groups being protected in both Synthesis Examples 1 and 3 are all on the hydroxystyrene.

Because only the hydroxyl groups on the hydroxystyrene are protected in the processes described by the Uetani references, these references fail to teach that both the hydroxyl groups of (a1) and the alcoholic hydroxyl groups of (a2) are partially protected by acid dissociable, dissolution inhibiting groups as recited in present claim 1. Thus, the claims cannot be anticipated by either of these references. Thus, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b) are respectfully requested.

2. Nonobviousness

In addition, the claims are not obvious in view of either Uetani reference, either alone or in combination with either of the secondary references (Ichikawa et al. or Ishibashi et al.). This is because none of the references disclose the feature of protecting both the hydroxyl groups of (a1) and the hydroxyl groups of (a2). Thus, the combination of references cited by the Examiner

fail to teach or suggest all the limitations of the claims, as would be required for a *prima facie* showing of obviousness.

Moreover, even if the cited combinations of references did support such a showing, protecting both the hydroxyl groups of (a1) and the hydroxyl groups of (a2) provides significant unexpected results that would rebut any *prima facie* showing of obviousness. The unexpected effects of partial protection of both the hydroxyl groups of (a1) and the alcoholic hydroxyl groups of (a2) are shown in Examples 1 and 2, and Comparative Example 1 of the present specification. Examples 1 and 2 disclose resins in which hydroxyl groups of a copolymer of both the p-hydroxystyrene and the adamantanol acrylate had been protected with 1-ethoxyethyl groups. In contrast, Comparative Example 1 discloses a resin like those described in the Uetani references, in which a portion of the hydroxyl groups of only the poly(p-hydroxystyrene) had been protected with 1-ethoxyethyl groups.”

The results of Comparative Example 1 show that, “The number of defects was so high as to be immeasurable.” (present specification at page 26, line 2), and that “this pattern exhibited a faster etching rate than the Examples 1 or 2, indicating an inferior level of etching resistance.” (present specification at page 26, lines 5-7). Example 1 discloses that “the etching rate was 1.2 times slower than the rate observed when the Comparative Example 1 was measured under identical conditions, indicating an excellent level of etching resistance.” (present specification at page 25, lines 1-3), and that “the number of surface defects was no more than 10, confirming that developing defects had been effectively prevented.” (present specification at page 25, lines 10-12).

In addition, Example 2 discloses that “the number (of defects) was no more than 20.” (present specification at page 27, line 5), and that “the etching rate of the resist pattern was 1.2 times slower than the rate observed for the Comparative Example 1, indicating an excellent level of etching resistance.” (present specification at page 27, lines 8-10).

Not only do the cited references fail to teach or suggest that both the hydroxyl groups of (a1) and the alcoholic hydroxyl groups of (a2) are partially protected by acid dissociable, dissolution inhibiting groups as recited in present claim 1, those having ordinary skill in the art could in no way have predicted the results obtained by applicants in which a positive photoresist composition comprising a resin component comprising a copolymer containing the structural units (a1) and (a2) as defined in present claim 1, in which both the hydroxyl groups of (a1) and

the alcoholic hydroxyl groups of (a2) are partially protected by acid dissociable, dissolution inhibiting groups. Nothing in the cited references or anything else known to those having ordinary skill in the art would lead one having ordinary skill in the art to expect that partial protection of these groups would have any of the beneficial effects discussed above (i.e. significantly fewer surface defects, much better etching resistance). Thus, these results are entirely unexpected, and are strong evidence of the patentability of the claimed invention.

In summary, the unexpected results discussed above could not have been predicted based on any of the cited references, either alone or in combination, and would effectively rebut any finding of *prima facie* obviousness. All of the remaining claims are ultimately dependent on Claim 1 and therefore are patentable for the same reasons. Accordingly, in view of the claim amendments and comments presented above, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a).

II. Obviousness-type double patenting rejections

Claims 1-6 and 8-11 were provisionally rejected on the ground of obviousness-type double patenting as being unpatentable over claims 1-6 and 9-19 of commonly owned, copending Application No 10/572,709 (US 2006/0240355).

Claims 1-6 and 8-10 were provisionally rejected on the ground of obviousness-type double patenting as being unpatentable over claims 1-7 of commonly owned, copending Application No. 10/540,056 (US 2006/0251986) in view of Uetani '661.

Claims 1-6 and 8-10 were provisionally rejected on the ground of obviousness-type double patenting as being unpatentable over claims 1 and 3-8 of commonly owned, copending Application No. 10/865,040 (US 2005/0042541).

The present application and the three patent properties cited in these rejections are commonly owned. Enclosed herewith is a terminal disclaimer over any patent granted on these applications. The terminal disclaimer overcomes the rejections. Accordingly, Applicants respectfully request reconsideration and withdrawal of the obviousness-type double patenting rejections.

Applicants also respectfully request that the Examiner review the prosecution history of these commonly owned patent applications for any issues relevant to the present application.

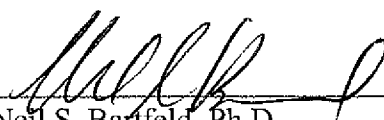
CONCLUSION

In view of the foregoing amendments and comments, it is respectfully submitted that the present application is fully in condition for allowance, and such action is earnestly solicited. If any minor issues remain which could be resolved by telephone, the Examiner is invited to contact the undersigned at the number provided below.

Respectfully submitted,

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Dated: 12/10/07

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